AMENDMENTS TO THE CLAIMS:

This listing of claims, in which claims 1-4, 13, 24, 30-45, 47 and 60 are currently amended, claims 46 and 48-60 are canceled without prejudice, and new claim 63 is added, will replace all prior versions and listings in the application:

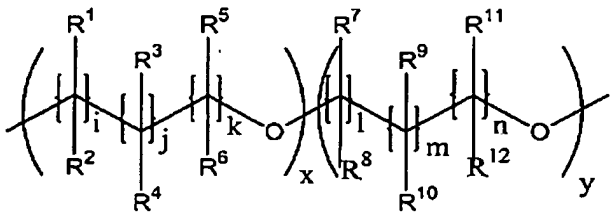
1. (Currently Amended) A method of ~~synthesizing~~ producing a CO_2-philic analog of a CO_2-phobic compound that is more CO_2-philic than the CO2-phobic compound, comprising the step of:

~~reacting the CO_2-phobic compound with~~ attaching a CO_2-philic ~~compound~~ moiety to the CO_2-phobic compound, wherein the CO_2-philic ~~compound~~ moiety includes [[is]] a polyether substituted with at least one side group including a Lewis base, a poly(ether-carbonate), a poly(ether-carbonate) substituted with at least one side group including a Lewis base, a vinyl polymer substituted with at least one side groups including a Lewis base, a poly(ether-ester) or a poly(ether-ester) substituted with at least one side groups including a Lewis base to create the CO_2-philic analog.

2. (Currently Amended) The method of claim 1 wherein the CO_2-philic ~~compound~~ moiety includes [[is]] a polyether substituted with at least one side group including a Lewis base, a poly(ether-carbonate), a poly(ether-carbonate) substituted with at least one side group including a Lewis base, or a vinyl polymer substituted with at least one side group including a Lewis base.

3. (Currently Amended) The method of claim 1 wherein the CO_2-philic moiety contains no F or Si atoms.

4. (Currently Amended) The method of claim 1 wherein the CO_2-philic ~~compound~~ moiety includes [[is]] a polyether copolymer including the repeat units



wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} are, independently, the same or different, H, an alkyl group, $-(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein $R^{22'}$ is an alkylene group and z is 0 or 1, and R^{22} is a Lewis base group, wherein at least one of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} is $-(R^{22'})_zR^{22}$, wherein, i, j, k, l, m, and n are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2 and at least one of l, m, and being 1 or 2, and x and y are integers.

5. (Original) The method of claim 4 wherein R^{22} is $-O-C(O)-R^{23}$, $-C(O)-R^{23}$, $-O-P(O)-(O-R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

6. (Original) The method of claim 4 wherein $R^{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

7. (Original) The method of claim 6 wherein a is 1 or 2 and i is 0, j is 1, k is 1, l is 0, m is 1 and n is 1

8. (Original) The method of claim 7 wherein R^3, R^4, R^5, R^9, R^{10}, and R^{11} are H, R^6 is an alkyl group and R^{12} is $-(CH_2)_a-R^{22}$.

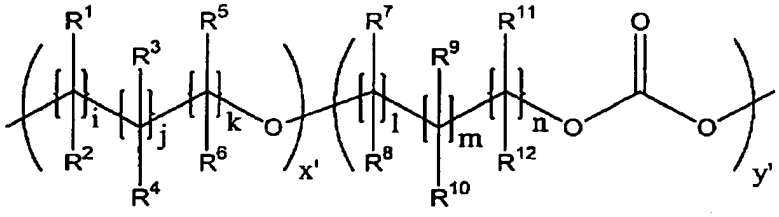
9. (Original) The method of claim 8 wherein R^{22} is O-C(O)-R^{23}, -C(O)-R^{23}, -O-P(O)-(O-R^{23})^2, or -$NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

10. (Original) The method of claim 8 wherein R^{22} is -O-C(O)-R^{23}.

11. (Original) The method of claim 10 wherein R^{23} is a methyl group.

12. (Original) The method of claim 4 wherein the polyether copolymer contains no F or Si atoms.

13. (Currently Amended) The method of claim 1 wherein the CO_2-philic ~~compound~~ moiety includes [[is]] a poly(ether-carbonate) copolymer including the repeat units:



wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} are, independently, the same or different, H, an alkyl group, -$(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein $R^{22'}$ is an alkylene group and z is 0 or 1, and R^{22} is a Lewis base group, wherein, i, j, k, l, m, and n are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2 and at least one of l, m, and being 1 or 2, and x' and y' are integers.

14. (Original) The method of claim 13 wherein R^{22} is -O-C(O)-R^{23}, -C(O)-R^{23}, -O-P(O)-(O-R^{23})$_2$, or -N$R^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

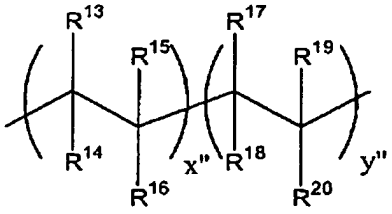
15. (Original) The method of claim 14 wherein $R^{22'}$ is -$(CH_2)_a$- and a is an integer between 0 and 5.

16. (Original) The method of claim 15 wherein a is 1 or 2.

17. (Original) The method of claim 13 wherein i is 0, j is 1, k is 1, l is 0, m is 1 and n is 1 and R^3, R^4, R^5, R^9, R^{10}, and R^{11} are H, R^6 is an alkyl group and R^{12} is an alkyl group.

18. (Original) The method of claim 13 wherein the poly(ether-carbonate) copolymer contains no F or Si atoms.

19. (Original) The method of claim 1 wherein the vinyl polymer is a copolymer including the repeat units:



wherein R^{13}, R^{14}, R^{15}, R^{16}, R^{17}, R^{18}, R^{19}, and R^{20} are, independently, the same or different, H, an alkyl group, an alkenyl group, -O-R^{24}, -$(R^{22'})_zR^{22}$, wherein, $R^{22'}$ is an alkylene group, R^{22} is a Lewis base group and z is 0 or 1, R^{24} is an alkyl group, wherein at least one of R^{13}, R^{14}, R^{15}, R^{16}, R^{17}, R^{18}, R^{19}, and R^{20} is -$(R^{22'})_zR^{22}$, and x" and y" are integers.

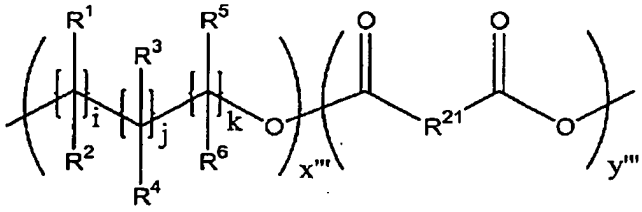
20. (Original) The method of claim 19 wherein $R_{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

21. (Original) The method of claim 20 wherein a is 1 or 2 and R^{22} is $-O-C(O)-R^{23}$, $-C(O)-R^{23}$, $-O-P(O)-(O-R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

22. (Original) The method of claim 21 wherein R^{22} is $-O-C(O)-R^{23}$.

23. (Original) The method of claim 19 wherein the vinyl copolymer contains no F or Si atoms.

24. (Original) The method of claim 1 wherein the CO_2-philic ~~compound~~ moiety includes [[is]] a poly(ether-ester) copolymer including the repeat units



wherein R^1, R^2, R^3, R^4, R^5 and R^6 are, independently, the same or different, H, an alkyl group, $-(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein z is 0 or 1, $R^{22'}$ is an alkylene group and R^{22} is a lewis base group, wherein, i, j and k are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2, R^{21} is an alkylene group, a cycloalkylene group, a difunctional ester group, or a difunctional ether group, and x''' and y''' are integers.

25. (Original) The method of claim 24 wherein at least one of R^1, R^2, R^3, R^4, R^5 and R^6 is $-(R^{22'})_zR^{22}$, and R^{22} is -O-C(O)-R^{23}, -C(O)-R^{23}, -O-P(O)-$(O\text{-}R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

26. (Original) The method of claim 25 wherein $R^{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

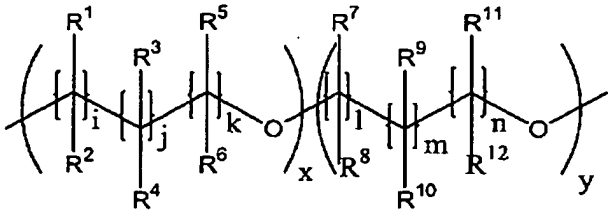
27. (Original) The method of claim 26 wherein a is 1 or 2 and i is 0, j is 1, and k is 1.

28. (Original) The method of claim 24 wherein R^{22} is -O-C(O)-R^{23}, -C(O)-R^{23}, -O-P(O)-$(O\text{-}R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

29. (Original) The method of claim 27 wherein R^{22} is -O-C(O)-R^{23}.

30. (Currently Amended) A ~~surfactant~~ compound for use in carbon dioxide, the ~~surfactant~~ compound comprising a CO_2-phobic group covalently linked to a CO_2-philic segment, wherein the CO_2-philic segment includes a polyether substituted with at least one side group including a Lewis base, a poly(ether-carbonate), a poly(ether-carbonate) substituted with at least one side group including a Lewis base, a vinyl polymer substituted with at least one side group including a Lewis base, a poly(ether-ester) or a poly(ether-ester) substituted with at least one side group including a Lewis base.

31. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the polyether is a polyether copolymer including the repeat units

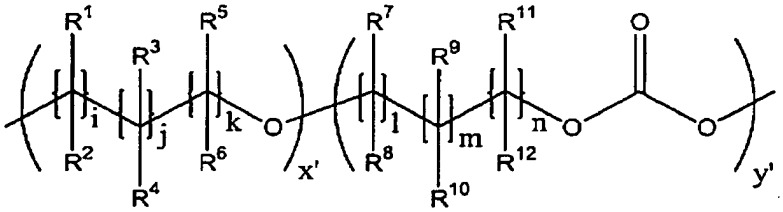


wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} are, independently, the same or different, H, an alkyl group, $-(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein $R^{22'}$ is an alkylene group and z is 0 or 1, and R^{22} is a Lewis base group, wherein at least one of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} is $-(R^{22'})_zR^{22}$, wherein, i, j, k, l, m, and n are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2 and at least one of l, m, and being 1 or 2, and x and y are integers.

32. (Currently Amended) The ~~surfactant~~ compound of claim 31 wherein R^{22} is $-O-C(O)-R^{23}$, $-C(O)-R^{23}$, $-O-P(O)-(O-R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

33. (Currently Amended) The ~~surfactant~~ compound of claim 32 wherein $R^{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

34. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the poly(ether-carbonate) copolymer includes the repeat units:

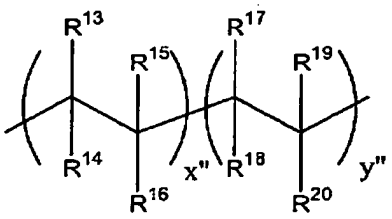


wherein R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, and R^{12} are, independently, the same or different, H, an alkyl group, $-(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein $R^{22'}$ is an alkylene group and z is 0 or 1, and R^{22} is a Lewis base group, wherein, i, j, k, l, m, and n are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2 and at least one of l, m, and being 1 or 2, and x' and y' are integers.

35. (Currently Amended) The ~~surfactant~~ compound of claim 34 wherein R^{22} is $-O-C(O)-R^{23}$, $-C(O)-R^{23}$, $-O-P(O)-(O-R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

36. (Currently Amended) The ~~surfactant~~ compound of claim 36 wherein $R^{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

37. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the vinyl polymer is a copolymer including the repeat units:



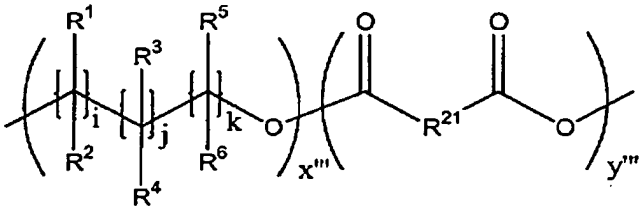
wherein R^{13}, R^{14}, R^{15}, R^{16}, R^{17}, R^{18}, R^{19}, and R^{20} are, independently, the same or different, H, an alkyl group, an alkenyl group, $-O-R^{24}$, $-(R^{22'})_zR^{22}$, wherein, $R^{22'}$ is an alkylene group, R^{22} is a Lewis base group and z is 0 or 1, R^{24} is an alkyl group, wherein at least one of R^{13}, R^{14}, R^{15}, R^{16}, R^{17}, R^{18}, R^{19}, and R^{20} is $-(R^{22'})_zR^{22}$, and x" and y" are integers.

38. (Currently Amended) The ~~surfactant~~ compound of claim 37 wherein $R^{22'}$ is $-(CH_2)_a-$ and a is an integer between 0 and 5.

39. (Currently Amended) The ~~surfactant~~ compound of claim 38 wherein a is 1 or 2 and R^{22} is $-O-C(O)-R^{23}$, $-C(O)-R^{23}$, $-O-P(O)-(O-R^{23})_2$, or $-NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

40. (Currently Amended) The ~~surfactant~~ compound of claim 39 wherein R^{22} is $-O-C(O)-R^{23}$.

41. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the CO_2-philic compound is a poly(ether-ester) copolymer including the repeat units



wherein R^1, R^2, R^3, R^4, R^5 and R^6 are, independently, the same or different, H, an alkyl group, $-(R^{22'})_zR^{22}$, or R^4 and R^6 form of carbon cyclic chain of 3 to 8 carbon atoms, wherein z is 0 or 1, $R^{22'}$ is an alkylene group and R^{22} is a lewis base group, wherein, i, j and k are independently, the same or different, 0, 1 or 2, at least one of i, j, and k being 1 or 2, R^{21} is an alkylene group, a cycloalkylene group, a difunctional ester group, or a difunctional ether group, and x''' and y''' are integers.

42. (Currently Amended) The ~~surfactant~~ compound of claim 41 wherein at least one of R^1, R^2, R^3, R^4, R^5 and R^6 is $-(R^{22'})_zR^{22}$, the lewis base group is

O-C(O)-R^{23}, -C(O)-R^{23}, -O-P(O)-(O-R^{23})$_2$, or -$NR^{23}R^{23'}$, wherein R^{23} and $R^{23'}$ are independently, the same or different, an alkyl group.

43. (Currently Amended) The ~~surfactant~~ compound of claim 42 wherein $R^{22'}$ is -$(CH_2)_a$- and a is an integer between 0 and 5.

44. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the CO_2-phobic group is H, a carboxylic acid group, a hydroxy group, a phosphato group, a phosphato ester group, a sulfonyl group, a sulfonate group, a sulfate group, a branched or straight chained polyalkylene oxide group, an amine oxide group, an alkenyl group, a nitryl group, a glyceryl group, an ammonium, an alkyl ammonium, an aryl group unsubstituted or substituted with an alkyl group or an alkenyl group, or a carbohydrate unsubstituted with an alkyl group or an alkenyl group.

45. (Currently Amended) The ~~surfactant~~ compound of claim 30 wherein the CO_2-phobic group includes at least one ion selected from the group of H^+, Na^{+2}, Li^+, K^+, NH^{4+}, Ca^{+2}, Mg^{+2}, Cl^-, Br^-, I^-, mesylate and tosylate.

46. (Canceled)

47. (Currently Amended) The ~~chelating agent~~ compound of Claim 30 [[46]] wherein the CO_2-phobic ~~chelating~~ group is a polyaminocarboxylic acid group, a thoicarbamate group, a dithoicarbamate group, a thiol group, a dithiol group, a picolyl amine group, a bis(picolyl amine) group or a phosphate group.

48.-60 (Canceled)

61. (Currently Amended) A method of synthesizing a CO_2-phile comprising the step of copolymerizing carbon dioxide and at least one oxirane in the presence of a catalyst.

62. (Original) The method of claim 61 wherein the oxirane is ethylene oxide, propylene oxide cyclohexene oxide, or epichlorohydrin.

63. (New) The method of claim 61 wherein the catalyst is a sterically hindered alkoxy aluminum catalyst.